Lowell Wastewater Utility

Downstream Notification Report
NPDES Permit No: MA0100633

Date of Event:
Mon, Nov 19, 2018

Dear Environmental Professionals and Interested Parties:

This report describes high-flow treatment performed at Lowell's Duck Island Clean Water Facility, as well as discharges of untreated Combined Sewer Overflows (CSOs) at the Utility's diversion structures. High-flow treatment refers to combined stormwater and sewage that receives screening and clarification before being mixed with water receiving biological treatment. This mixture is then disinfected and discharged into the Merrimack River in full compliance with permit requirements. CSO diversions are an untreated mixture of stormwater and dilute sewage that is discharged directly into nearby receiving waters when the capacity of the treatment and transport systems are exceeded as a result of heavy rain. These diversions occur only when necessary to protect public health and safety.

Please refer to the final two pages of this report for an explanation of terms.

Wastewater Flow to Duck Island		
Daily Flow Rate (MGD)	Peak Hourly Flow Rate (MGD)	Instantaneous Peak Flow Rate (MGD)
51.53	79.12	91.52

	Rainfall			
	Daily Rainfall (in)	Duration Total (hr)	Max Hourly Rainfall (in/hr)	Peak Intensity (in/15-min)
Duck Island	0.27	12	0.05	0.02
River's Edge	0.34	9	0.11	0.04
Warren	0.33	10	0.09	0.03

High-Flow Treatment Summary	
Duration (Minutes)	Volume (MG)
195	1.67

Combined Sewer Overflows Summary	
Maximum Duration (Minutes)	Volume (MG)
0	

Person Reporting Event: Greg Coyle - Lowell Water Engineering

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High-Flow Treatment Duck Island

Time	Duration (Minutes)	Volume (MG)	Duck Island Rain (in)
01:00			
02:00			
03:00			
04:00			
05:00			
06:00			0.03
07:00			0.02
08:00			0.02
09:00			0.03
10:00	9	0.01	0.05
11:00	7	0.01	0.03
12:00	6	0.01	0.02
13:00			0.01
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			0.01
20:00			
21:00			0.02
22:00	53	0.08	0.01
23:00	60	0.80	0.02
24:00	60	0.76	

Barasford Station Diversion to Merrimack River

Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Beaver Brook Station Diversion to Beaver Brook

Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

High-Flow Treatment Duck Island

24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	195	1.67	0.27

Barasford Station To Merrimack River

24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Beaver Brook Station To Beaver Brook

24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

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Merrimack Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Read Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
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16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Tilden Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Merrimack Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Read Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Tilden Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

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Walker Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Warren Station Diversion to Concord River			
Time	Duration (Minutes)	Volume (MG)	Warren Rain (in)
01:00			
02:00			
03:00			
04:00			
05:00			
06:00			
07:00			
08:00			0.02
09:00			0.05
10:00			0.09
11:00			0.05
12:00			0.03
13:00			
14:00			
15:00			
16:00			
17:00			
18:00			
19:00			0.01
20:00			0.01
21:00			0.02
22:00			0.02
23:00			0.03
24:00			

West Station Diversion to Merrimack River		
Time	Duration (Minutes)	Volume (MG)
01:00		
02:00		
03:00		
04:00		
05:00		
06:00		
07:00		
08:00		
09:00		
10:00		
11:00		
12:00		
13:00		
14:00		
15:00		
16:00		
17:00		
18:00		
19:00		
20:00		
21:00		
22:00		
23:00		
24:00		

Walker Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

Warren Station To Concord River			
24 Hour	Total Duration (Minutes)	Total Volume (MG)	Total Rainfall (in)
	0		0.33

West Station To Merrimack River		
24 Hour	Total Duration (Minutes)	Total Volume (MG)
	0	

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Definitions and Abbreviations:

Flow Reporting Terms:

Daily Flow Rate, million gallons per day (MGD):
Million gallons of flow treated at Duck Island

Peak Hourly Flow Rate (MGD):
The highest flow rate treated at Duck Island over a rolling one-hour period

Instantaneous Peak Flow Rate (MGD):
The highest flow rate treated at Duck Island at any moment of the day

Duration (Minutes):
Number of minutes in a given hour or over the course of the day a flow was measured

Weather Reporting Terms:

Rainfall:
Rainfall as measured by Lowell's network of rain gauges

Daily Rainfall, inches (in):
The total depth of rainfall measured by each rain gauge over the day

Max Hourly Rainfall (in/hr):
The total depth of rainfall measured by each rain gauge in one hour

Peak Intensity, inches per 15 minutes (in/15-min):
The greatest total depth of rainfall received in any 15-minute period.

Duration Total (Hour):
The number of hours in the day during which it rained.